THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. II.] Copyright, 1876, JAMES R. OSGOOD & CO. [NO. 55.

BOSTON, JANUARY 13, 1877.

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THE lesson of the Brooklyn Theatre is taking effect in municipal orders for the security of theatres in various cities. The precautions thus taken are naturally not of a radical kind, being merely such partial remedies as can be applied to the defects of existing theatres. The real improvement is a thing of time, and is to be looked for in supervision of the planning of theatres, as new ones are built, or old ones rebuilt. The New York Superintendent of Buildings has ordered a number of alterations in the theatres of that city, chiefly in making new outlets, and in enlarging those which exist. The Academy of Music is ordered to have additional stairs to the mezzanine boxes and to the gallery; the Park Theatre to have an additional exit from the upper galleries; Wallack's, which is a rather desperate case, is to be relieved by three new window-outlets; and the Union-square Theatre by new openings from the first and second galleries, and doors and bridges. Other theatres are to be altered in similar ways. In Cincinnati the Common Council appointed a safety commission to examine and report upon the means of egress from theatres, halls, and churches. They have examined a number of public buildings: the only one of these to which they had on their first examination given a certificate of safety was the Grand Opera House, and this on condition of certain precautions. The proprietors of four theatres, one hall, and one church, were summoned to answer for the lack of security in their buildings.

A SIGNIFICANT commentary on the unsuitable situations which theatres were allowed to occupy is that in several of the cases in New York the officials have found no way of providing the necessary escape except through adjoining buildings, or over their roofs. Thus the window-escapes ordered for Wallack's are on both sides upon the roofs that adjoin it; the new exit to the Park Theatre is to be into the adjoining building or its yard; exits are to be made from the dressing-rooms of the Stadt Theatre to the neighboring roofs; one side of the Union-square Theatre is to be emptied by a bridge into the windows of a building at its side, and others in like manner. This sort of thing seems to us particularly objectionable. The conditions that make it necessary ought to be done away with as soon as possible. To say nothing of the danger of discharging a panic-stricken crowd upon high roofs or bridges, there is the danger of having these outlets blocked by changes in the neighboring buildings, unless these are put under oppressive restrictions, the risk of fire being carried into the theatres if the buildings should take fire, unless the communications are very securely guarded, and the danger that they will be found impassable in an emergency if they are. There is also the danger of injury to the adjoining buildings from the sudden rush of the crowd into them, and the certainty, almost, that the fire would follow them if the theatres should burn. A theatre under these circumstances becomes a more uncomfortable neighbor than ever. The danger and inconvenience are more than it is reasonable to impose upon abuttors, and we should think they would have a right to protest against them. The only proper remedy would seem to be in a gradual extinguishment of the licenses for theatres in situations where they must be closely packed against other buildings, and in restricting them henceforth to places where they can have their sides exposed and their exits clear. This is a reform which demands legislation, and can only be gradually accomplished. It is to be hoped that public interest in the matter will not subside till something decisive is done toward insuring it.

IT is said that the State Capitol of Indiana is becoming so unsafe that the examining architect has condemned it, and the legislature propose to abandon the use of it, and seek for security in the new court-house of Indianapolis. The walls of the building, it seems, are badly cracked, the roof framing is decaying, and the large cupola sways and totters in the gales till it is thought dangerous to be under it. We do not know how old the Capitol of Indiana is, but its age cannot be great, for the State itself is only sixty years old. Its dilapidation must therefore be the consequence of bad building. If the dome should tumble down some day, its fall might possibly produce a beneficial revulsion against the belief that a dome is a necessary feature in a state-house. How it came to be so is not recorded, but in the common prejudice a dome is as indispensable to a state-house as a cue to a Chinese head. A curious instance of this prejudice is said to have appeared in arranging for the plan of the new Capitol at Hartford, Conn. Mr. Upjohn, we are told, in preparing a Gothic design for it, naturally made it without a dome. But the building committee insisted that a state-house always had a dome, that no state-house had ever been built without a dome, and that theirs must have one; and Mr. Upjohn was obliged to add one to his design. As long ago as 1873 the legislature of Indiana ordered that designs for a new state-house should be procured; and several designs were submitted to the legislature of 1875, but nothing was done towards carrying out any of them, nor was one adopted, we believe. In his recent message to the legislature, Gov. Hendricks has again called their attention to the want.

THE report for 1876 of the superintendent of buildings of Chicago shows an amount of building which is surprising, considering the business depression of the year. 1586 buildings were put up with a total frontage of 43,222 feet, and a cost of $8,270,600. Of these 713 were of brick, and 873 of stone or with stone fronts. Ten were public buildings, and ten churches; 137 were "stores;" 225 were dwellings with shops attached; over a thousand were dwellings alone. Nearly seven hundred were three stories high and upwards. The efficiency with which the building-laws are enforced may be inferred from the fact that 2,058 notices for violation of the ordinances were served, and in 2,044 of them the ordinances were submitted to on notification. The officers of the department of buildings are, one superintendent, one secretary, one inspector of public buildings, one inspector of roofs, and six inspectors of buildings. Inasmuch as it is the duty of the department to watch all buildings that go up, and prevent violations of the building-acts, to take charge of the removal of wooden buildings, to investigate all fires, and record the causes, losses, and insurance, in a city whose fire-limits include thirty-six square miles, there is evidently work enough for them to do, and apparent reason for the recommendation of the superintendent that the inspectors should be provided with horses. A very good recommendation also, for any city, is that plans of all theatres, public halls, churches, and schools, should be procured and kept on file by the city, and should show their seating-capacity, and provisions for extinguishing fires. The plans would be open to public inspection, and, being modified whenever alterations were made in the buildings, would be always a record of the condition of all places of public meeting, as well as a security for their being arranged and provided as they ought to be. We commend the suggestion to the attention of other cities.

AT our time of writing, the expected message from the President on the Isthmus Canal project has not yet been sent to the Senate; but the tenor of the report of the commission which examined the different surveys, and the treaty which has been negotiated with the Nicaraguan Government, have been made known through the daily papers. The commissioners, Commodore Ammen, Gen. Humphreys, and Capt. Patterson, have recommended the Nicaraguan route; the President takes a strong interest in the project, and the proposed treaty is the result. The route chosen is from Greytown on the Atlantic coast by the river San Juan to Lake Nicaragua; thence across, or rather along, the lake, and down to the Pacific coast at Rio del Brito, utilizing the course of the Rio del Medio and the Rio Grande. The whole length is something under two hundred miles, of which only about sixty is by artificial canals, and about equal distances by the lake and by "slack-water" navigation in the San Juan. There is no tunnelling in the route as we understand it. The elevation to be overcome is but little over a hundred feet, and will require fourteen locks at each end. (Commodore Selfridge's route by the Napipi required three miles of tunnelling and two hundred feet of lockage.) The Nicaraguan route has the advantages of availing itself more than the others of the natural waterways of the country, of an inexhaustible supply of water for lockage, of moderate elevation, and lockage concentrated at each end where it can be overlooked and managed by a moderate because not dispersed *personnel*, and of long reaches of river and lake which will require little or no watching. The estimated cost is reported at fifty millions of dollars, to which, it is said, the President wisely adds an equal sum for contingencies.

ACCORDING to the report of the treaty it is guaranteed that the ports at each end of the route shall be neutral territory, and that the guaranty shall cover a distance of one hundred miles out to sea, and a hundred miles along the coast on either hand and at each end. A specified belt of territory bordering upon the canal through its whole length shall also be neutral ground; and within these neutral limits the ships or property of all nations which shall participate in building the canal are to be exempt from capture, blockade, or any other embarrassment. To secure this participation in behalf of the chief commercial nations of Europe, the State Department has been in communication with their governments. Great Britain, which indeed was committed to an interest in the establishment of such a canal by the Clayton-Bulwer treaty of 1850, has after some hesitation signified her readiness to co-operate in the undertaking; and Germany and Russia are reported to have done the same. France has not yet given a response, it is said, which is not unnatural, perhaps, considering that her *savants* have just been urging our Government, through M. Léon Drouillet, as our readers will remember, to adopt the Atrato route of Señor Gogorza. Italy and Austria also seem to be backward in promising support. It is a question how much money is likely to be forthcoming under immediate prospect of a European war.

THE vexed question of the decoration of St. Paul's, London, is again brought forward in a published letter to the Dean by Mr. Oldfield, a member of the committee appointed to take charge of the work. Mr. Oldfield has been making an examination of the decorations of the principal Renaissance churches in Italy, with the hope of evoking some precepts that would guide in the treatment of St. Paul's. He has not come back provided with a definite scheme for the whole cathedral, but recommends that the dome, which is clearly the commanding feature for decoration, be attacked first, and that the decoration be in mosaic. That mosaic should be used, is the prevailing feeling at this day, and was, as is well known, the desire of Sir Christopher Wren. Mr. Oldfield's conclusions are, that figure-subjects in mosaic should be arranged on the surface of the inner dome "in formal if not actually geometrical compartments, distributed equally around the vault in accordance with its structural uniformity;" that the figures should be designed "with severe statuesque simplicity, and as far as possible in one plane" (meaning, we suppose, as if on one spherical or spheroidal surface); that they shall be boldly executed in mosaic of large *tesseræ* and on a gold background. All this appears reasonable enough as far as treatment goes. He recommends a competition between Mr. Leighton, Mr. Watts, and Mr. Poynter, with liberal compensation; each artist being required to submit a colored drawing for his whole scheme, and a section of it in full size, which can be fixed temporarily in its place, and so judged from below. Considering that ordinary pictorial mosaic costs from two to three pounds per square foot, and that the work being on a large scale would be more easily and cheaply executed, he thinks that the whole decoration of the cupola might be executed for less than thirty-four thousand pounds.

MR. OLDFIELD clinches his proposal by saying that "it would be no small advantage in commencing our work, that we should not need an architect to furnish us with a design; for thus we should not merely avoid considerable expense, but escape the almost insoluble difficulty of finding any member of the profession who would at the present time be acceptable to all sections of the subscribers." This is of course in remembrance of the trouble incurred when the arrangement of the decoration was put into the hands of Mr. Burges, and when the opposition excited by his project was found to be so great that it was withdrawn. That, however, was a not unnatural result, in a war of styles, of putting the decoration of a Renaissance church into the care of a pronounced mediævalist, even an artist of so acknowledged power as Mr. Burges. The difficulty is that to definitely fix the decoration of the dome of a large church by itself, in the hope that the rest of the interior may be subsequently adjusted to it, at a different time, and possibly by different hands, is giving hostages to fortune in an extremely hazardous way. To decorate a building is to arrange a complicated scheme in which its architecture should play the ruling part; and the supervision of an architect is therefore almost indispensable to it. Moreover, the special usefulness of an architect in supervising any scheme of general decorative treatment is exactly this: that his experience habituates him to arranging a multitude of diverse elements and features of design with reference to a general effect, and on a large scale, as no other artist has to do in the same degree or on the same scale. Painters, sculptors, decorators even, work on parts of a whole, or on a whole of comparatively small dimensions; the architect alone is used to controlling and harmonizing every detail of a large and complicated structure into the unity of a single effect. Herein more than any other artist he has his whole training in his favor, and, other things being equal, he is most likely to succeed.

ARCHITECTURAL STUDENTS. — VII.

THE architect must sketch, both as a means of acquirement and of expression, — to record what he sees, and to work out his ideas with freedom in designing. But though everybody talks about sketching, and almost everybody tries to do it, there is so much misunderstanding of what it really is, or at least so much difference in the use of the term, that it is worth while to consider what shall be understood by it.

A common notion is that a sketch is an incomplete drawing, or perhaps a rough drawing; but a sketch, in the proper artistic sense of the word, differs from a drawing in kind rather than in degree. To draw is to represent, as well as drawing-materials will allow, the whole aspect of a thing. In imperfect drawing one goes as far toward this as his means, his time, or his skill permit. To sketch is to select some particulars of one's subject, and reject others, with reference to a preconceived effect. The sketcher chooses some few characteristics or a single characteristic and sets it forth with as much decision as possible: the draughtsman represents his subject as completely as he may under the circumstances, and stops. The essence of the sketch is in the selection of elements and in the combination of them, so as to produce a single impression decided upon beforehand. A sketch is one-sided, a drawing incomplete. It follows therefore that there will be more diversity among sketches than among drawings. In drawing, the thing to be done is always the same; the difference is in the mechanical devices and methods of execution; but in sketches the things

which the artist sets himself to represent are different, and there are as many ways of sketching a thing as there are artists to sketch it.

When the draughtsman begins to select he begins to sketch. An artist will not select things simply for their obviousness, nor because they are easy to render, but for their significance in the character of his subject or for their importance to the particular effect he wishes to produce; and in his slightest sketch he may seek out some very subtle and difficult quality of his subject rather than any easy or obvious one. The success of a sketch then depends on the skill with which the chosen characteristics are represented, and combined into a single telling impression; its value on the whole will depend very much on the excellence or importance of these characteristics themselves, — on the feeling and knowledge that guided the artist in selecting them. In an article on architectural etching (No. 19, May 6, 1876), we dwelt somewhat on the difference between a painter's choice in sketching and an architect's. The architect naturally concerns himself with objects of design, and the design of them is the thing he keeps in mind; their forms, the niceties of their proportion, the character and adjustment of their detail, are the things on which he fixes his attention. The painter, especially the landscape-painter, who is most in favor now, thinks more of accidental characteristics, — of effects of light, the marks of age and dilapidation. If the arrangement of his picture wants a higher tower he lifts one up, with little heed to its architectural proportion; if he wants a more overshadowing cornice he thrusts one out, and does not concern himself about its proportion to the base mouldings below. But an architect represents the things he draws with more reference to their essential than their accidental aspects. Nay, their accidental aspects may interfere more or less with what he is after; and he may therefore disregard and strip off the very things that the painter would most wish to give. Accidental effects of light or color, the mouldering of age or marks of violence, may be in his way. For his purpose it may be necessary to make prominent what the painter would subordinate or even leave out, to sink what he would lift into importance. The architect's business is first of all with design, and even with the design as it was intended to be, rather than as it appears when outside circumstances have obscured it. When he draws or sketches a building or any work of art, he therefore follows its form into detail with faithful precision, as far as he goes, and traces the intention of its design with the same observance that the painter gives to the look that nature bestows upon it. Hence the architect's aim is simpler and more uniform than the painter's; and two architects, whatever their difference in manner, would be much more likely to agree in the substance of their sketches than two painters. The interest of the architect's sketch is more entirely in its subject than the painter's, and less in his way of looking at it. If it were not for talking slang, we should say that the architect's sketching was more objective, and the painter's more subjective. Hence the architect perhaps subordinates himself more entirely to his subject, even though his pursuit of it may lead him into certain conventionalisms, and make his presentation of it less naturalistic than the painter's. The red color of a roof will be more important to the painter's eye than its exact pitch, the stains and lichens on the wall than the bonding of its masonry, the scars of its history than the enrichment of its mouldings. To the architect this is all the other way. Of course it is very desirable that he should not be insensible to the qualities that attract the painter. Perhaps his training is too apt to make him so. So far as he can compass them in his work, without neglecting those which it is his special part to secure, it is the better for him; to neglect them entirely is sure to injure his sensitiveness, and to narrow him. We enlarge on these distinctions because many people forget them, and are disposed to look for the same qualities in architects' drawings or sketches that they find in painters', and to find fault if they are not there; whereas it is hardly possible that the architect, beginning with a different aim from the painter's, should not reach a different result.

Since the merit of sketching is in the merit of the selection which it indicates (and in the skill with which the selected points are set forth), it follows that it requires knowledge of the subject. We have argued more than once that practically one cannot draw well any thing that he is not familiar with. An absolutely perfect draughtsman could probably do this; but we are not concerned with him. It is not likely that even he could sketch perfectly what he did not know. For in order to know how to select what is most characteristic in any thing, we must know its character. We doubt if any man altogether unfamiliar with watches and with machinery would, in looking at a watch, detect that the most active member in it was the immobile main-spring. The utmost precision of eye and hand might enable a draughtsman who did not know the human figure to draw it satisfactorily, by making his drawing as comprehensive as possible; but this would not teach him to cull for a sketch the subtle indications from which the practised eye would catch the action of the figure. This can only come of thorough familiarity. The same thing is true of foliage, or of architectural detail. These considerations bear upon a question which concerns the student, one which has been considerably discussed, — whether we should learn first to draw or to sketch. Mr. Ruskin and his followers argue that one cannot sketch properly till he can draw well. The French theory is, that one must learn to sketch first, or he will never learn it. Logically it would seem that Mr. Ruskin's position was the stronger; but it may be urged that though one must know the whole to be able to select the most characteristic parts, after long training in complete representation only he will find it extremely difficult to restrict himself to a limited selection. The faculty of choice also needs training. Practically we think it will be found best, — is the common experience, in fact, — that drawing and sketching should go hand in hand. And we recommend the student to accustom himself from the beginning to do both, and with the same subjects; to draw a subject faithfully, and then to sketch it. While it is fresh in his mind, and familiar, let him consider carefully what are its characteristic points, and set them down as simply, straightforwardly, and carefully as he can, rejecting all others. Then let him draw another subject, and sketch that; and so educate himself simultaneously in both, that his drawing may be discriminating, and his sketching characteristic and decisive. In this way his knowledge, his judgment, and his power of rendering, will grow together.

There is a popular and foolish admiration for slightness and dash in sketching. It comes partly, as Mr. Ruskin says, from indolence in the beholder, who does not want the trouble of looking into a picture or a careful drawing, and in great part also from the admiration which every one feels for the decisiveness of confident knowledge. But there is a confidence of contented ignorance as well as of knowledge, and it is rather the more plentiful, in drawing as well as in other kinds of work. There is a charm in simplicity and directness of statement; but it is thrown away unless the statement be true, and worth making. Unluckily, inconsiderate persons are too apt to be more pleased with the boldness of the assertion than critical of the thing asserted. A really careless sketch is good for nothing; or, if it has merit, it is only by virtue of some grace or power that pierces through its carelessness, and reveals itself in spite of it. A sketch may be neglectful, deliberately neglectful, of the most that there is in its subject, and yet be as good as a sketch can be, if the few things that are chosen are set forth with the right force and feeling; but this implies a concentration of care, conscious or unconscious, upon these things. But a negligent sketch, one with which the maker does not take pains, is always poor. The more you strip away from your subject, the more important it is to see that the things you keep shall be of value. Next to direct falsity, the worst offence of a sketch is emptiness: whether it appears in the guise of careless dash or of laborious puttering, this is alike offensive. On the whole, the emptiness of impudence is rather more offensive than that of painstaking insufficiency. The tendency among draughtsmen to a dashing execution, without having any thing to tell, gives just the air of empty-headed positiveness which is most annoying to intelligent people. The swagger of the cheap swell is even more intolerable in art than in society.

We counsel the young draughtsman, therefore, not to set his heart upon what the French call *chique*. It simply means to him display; and, sought for its own sake, it means display of emptiness. When a man has any thing decided to say, and knows his means of expression, he is

pretty sure to say it with spirit, if there is any spirit in him. If there is none, he will not succeed in counterfeiting it. Nor can he counterfeit knowledge any better. Ignorant people may be tricked into applause; but knowing ones will see through him. Sketching is not a careless or a lazy or an easy occupation. It may be quick and decisive, but it demands extreme care. The lazy man will do better in drawing. The cardinal quality of a sketch is concentration. Hence the whole of it must be foreseen from the beginning. Every unconsidered or unnecessary touch in it is an impertinence. The less there is in it, the greater care is necessary that that little shall be good. It is too much the habit to stint in quality as well as in quantity.

DECORATIVE FINE-ART WORK AT PHILADELPHIA.

AMERICAN FURNITURE (*Concluded*).

ONE of the most prominent objects in the American rooms of the Art Annex was the carved Gothic frame on the full-length portrait of a "Princess of Roumania" by G. P. A. Healey. This frame was worthy of notice as a work of decorative art; and, as easel pictures are generally treated as furniture by their owners, there seems to be no reason why this should not be included in the same category. The frame was of extraordinary size, and rather overawed the picture that it contained. Considered by itself, it was a magnificent example of Gothic decoration. It was designed by John Addison, architect, and carved by James Legge, both of Chicago. The material was butternut, on which American carvers so much delight to exercise a freedom which is often restrained by harder woods. As this was the only example of Mr. Legge's work in the Exhibition, so also was it one of the finest that he has produced, and was the only work of the kind that could stand comparison with that of Ellin, with whom Mr. Legge was once a partner. The work of both went to show that training in architectural carving is, after all, the best to fit men for the finer qualities of work required for furniture, and enables them to outstrip the professed furniture-carvers with ease.

One of the eccentricities of the Exhibition was a display of furniture "in the style of 1776," by George J. Henkel of Philadelphia, and might fitly be called an example of the "American Renaissance style." It showed how little can be done in the way of imitation by one who does not understand the true spirit of what he is imitating. This was nothing less than a caricature of the substantial surroundings which our ancestors possessed. The fact that it was made from an old maple-tree which grew in Independence Square could not lend sufficient sentiment to the subject to redeem it from this charge. The examples of reproductions of the same style by the English firm of Wright & Mansfield showed what could be done in this way by people with good understanding, and made Mr. Henkel's attempt appear all the more abortive.

There were quite a number of musical instruments which displayed considerable artistic design in their cases, though most of them were of the old conventional styles, varied only by greater elaboration. The amount of bad design and inartistic work put upon the latter was sad to behold. Many of the cabinet organs and upright pianos were, by the desperate expedients of their designers, made to resemble sideboards rather than musical instruments. A few of the parlor organs had very good Gothic cases, among which might be mentioned one by George Woods & Co. of Boston, and another by the Mason & Hamlin Organ Co. of New York. A constructive character in such instruments is not inappropriate.

As in the construction of a piano it is essential, for obtaining clearness of tone, that all the woodwork shall be as if in one piece, it is conceded that all the devices of constructive woodwork are inexpedient. The more simple and smooth the treatment, the more rational is the design of such an object. Carving and projections are manifestly out of place; mouldings are neither useful nor artistic. The only resource left is surface-decoration, and this is best produced with inlays or painting. There were a few good examples among the pianos exhibited by the Americans, of this treatment. The finest were the pianos of ebonized wood, decorated with artistic inlay work in bright-colored woods, exhibited by Albert Weber of New York. We understood that these cases were designed and made by Herter Brothers. One ebonized piano by Hardman, of New York, was inlaid with ivory. There were also two ebonized and inlaid pianos by Decker Brothers of New York. All of these showed a decided advance in this branch of art-workmanship.

Any account of artistic work at Philadelphia would be incomplete without mention of the samples of chairs manufactured by the Shakers at Mount Lebanon, N. Y. Nothing could be more utilitarian than these goods. They carry the illustration of the principles of perfect construction and adaptability to use to the farthest possible point. And more than this, there is not the slightest touch given them that could be called ornament. Yet no one can say that the element of beauty is wanting in them. It is this unconscious beauty which makes them works of art. In this they are the best possible demonstration that the art principle is derived from the best adaptation of means to an end, combined with the most perfect execution. This is what is known as the rationalistic definition of art, and the Shaker chairs illustrate it in the simplest way. In execution they are faultless, for they are the work of a conscientious people; and these people happen to be singularly innocent of all artistic intentions. In fact, their whole life and religion are a protest against art. These chairs are too familiar to need description. They may be found in almost any well-ordered household. But too often they are only bought as curiosities, or for the sake of saying, "We have a Shaker chair." Therefore one or two seem to be considered enough for a house. Yet they are the best dining-room chairs ever made, and are worthy to stand beside the works of the best manufacturers. Already some of the manufacturers have begun to imitate them, and many who suppose they have Shaker chairs are imposed on. But the imitations have never equalled the originals in perfection of workmanship and finish. The chairs on exhibition were in three colors, natural maple, stained maple, and ebonized. Some of the coverings were of thick stuff, in colors sometimes harmonized with good effect.

The display of upholstery work in the American department was quite as varied as that of the furniture, furnishing a few, very few, examples of tasteful hangings and coverings, and many of those monstrosities of upholsterers' ornamentation which appear as if no one could have produced them unless possessed of a depraved taste combined with a disordered brain. Of such sort was an exhibition of upholstered chairs and sofas by a Philadelphia house which it is best to leave unnamed. Chairs were covered with several colors of satin, inharmonious in combination. The uncomfortable backs were like great tufted rosettes; lines of tufting, spread out like rising suns, covered backs of sofas which followed the sinuosities of contorted and agonized woodwork, until the beholder felt like rushing away as from a nightmare. One exhibitor from New York showed a curtained bay-window (in a glass case) hung with rich satins, velvets, and fringes in good combination of color. This had some good points in the valance treatment in the upper part; but when invention failed to supply more combinations for the complication of immense tassels, he used wooden poles for cords, and made tassels of satin and velvet, hanging down below the vertical poles like collapsed conical tents, the bottoms sprawling over the floor to trip up the unwary. This illustrates the error of those who think that art means complication rather than simplicity. The leather hangings of C. R. Yandell & Co., of New York, were much admired, as they deserved to be. This firm have introduced some of the most exquisite patterns of stamped, gilded, and colored leather, that have ever been produced. We can safely assume that the display of leather curtains made by this firm was intended rather as an array of samples than a composition to be recommended for use. As such it was the richest thing of the kind in the Exhibition. The composition was artistically made, but would not be appropriate for window-hangings. The American upholstery generally considered was far behind that of the English in artistic arrangement, though the latter did not make a very extensive exhibit.

A comprehensive view of the whole collection of furniture, foreign and American, reveals the condition of the arts applied to furniture, as nothing but an international exhibition could. First, as regards material, it is seen that the Italians and Americans use black walnut mostly; the Continental countries employ ebonized wood and oak. It is clear that the former is the fashion, as is shown in its use for cabinet pieces; while oak maintains its position as the standard wood for all articles of solidity and permanence, herein asserting its pre-eminence as the noblest of woods. England contributed her portion of ebonized wood and oak, and in addition those artistic combinations of rare and richly colored woods for which her manufacturers are becoming famous, in which the essential beauty of marquetry or inlaid work is seen to pervade the whole piece. Among the Americans, after black walnut, of which about three-quarters of all the exhibited pieces were made, the materials were as various as the styles. The leading houses had examples of ebonized work, showing that what has been a general fashion in Europe has been imported. It is still a novelty here where but few purchasers can made up their minds to have rooms furnished with black. There were few examples of American oak furniture aside from the exhibit of R. Ellin & Co.; and there can be no better evidence of the backward condition of furniture-making in this country than the slight use made of oak. There is perhaps no country in the world more rich in the production of this material, and more ignorant of the proper way to prepare and use it. Our workmen protest that it will never stand; so when a piece is ordered, if they can have their own way, they will glue and patch together several pieces of oak for each single piece that they should use. The effect of the beautiful grain is therefore lost, and with it all impression of solidity. The facts are that they will not take the trouble to procure wood of the required sizes, and try to make every thing out of inch boards, whatever the design. Many of them, when compelled to use the proper-sized pieces, have so little judgment and experience that disastrous results often follow. As the manufacturers want so little of this material, the lumber-dealers do not feel justified in keep-

CUMMINGS & SEARS-ARCHTS.

DETAILS OF NEW OLD SOUTH CHURCH

Boston, Mass.

PERSPECTIVE SKETCH OF BEAMS SUPPORTING ROOF TRUSSES.

PLAN AND ELEVATION OF CAEN STONE SCREEN UNDER ORGAN LOFT.

SCALE

CAPITAL OF SHAFT IN ABBEY BUTTRESSES

CINQUE FOIL IN GABLES

ROSETTES IN CUSPS

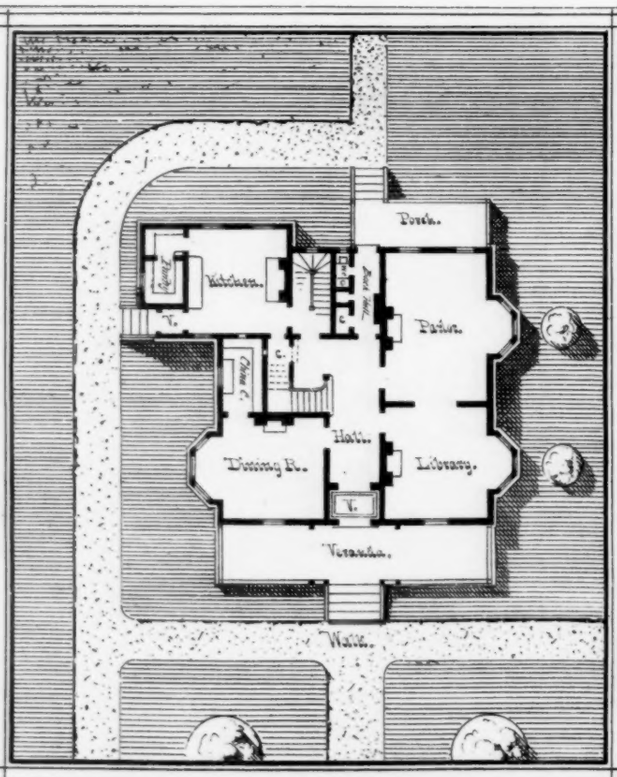
LINTEL

HELIOTYPE

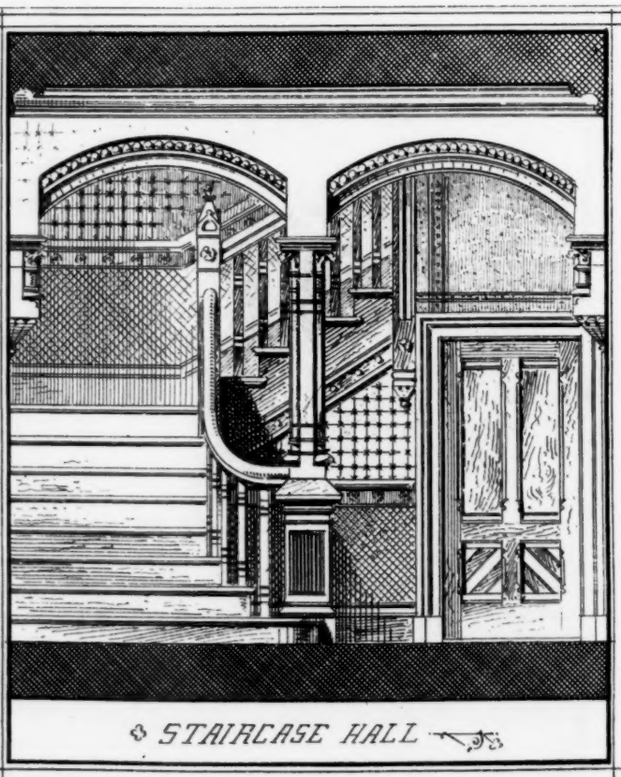
JAMES R. OSGOOD & CO. BOSTON

HOUSE FOR T. B. MACKAY ESQ. CAMBRIDGE, MASS.

PEABODY & STEARNS ARCH^TS.



PLAN.

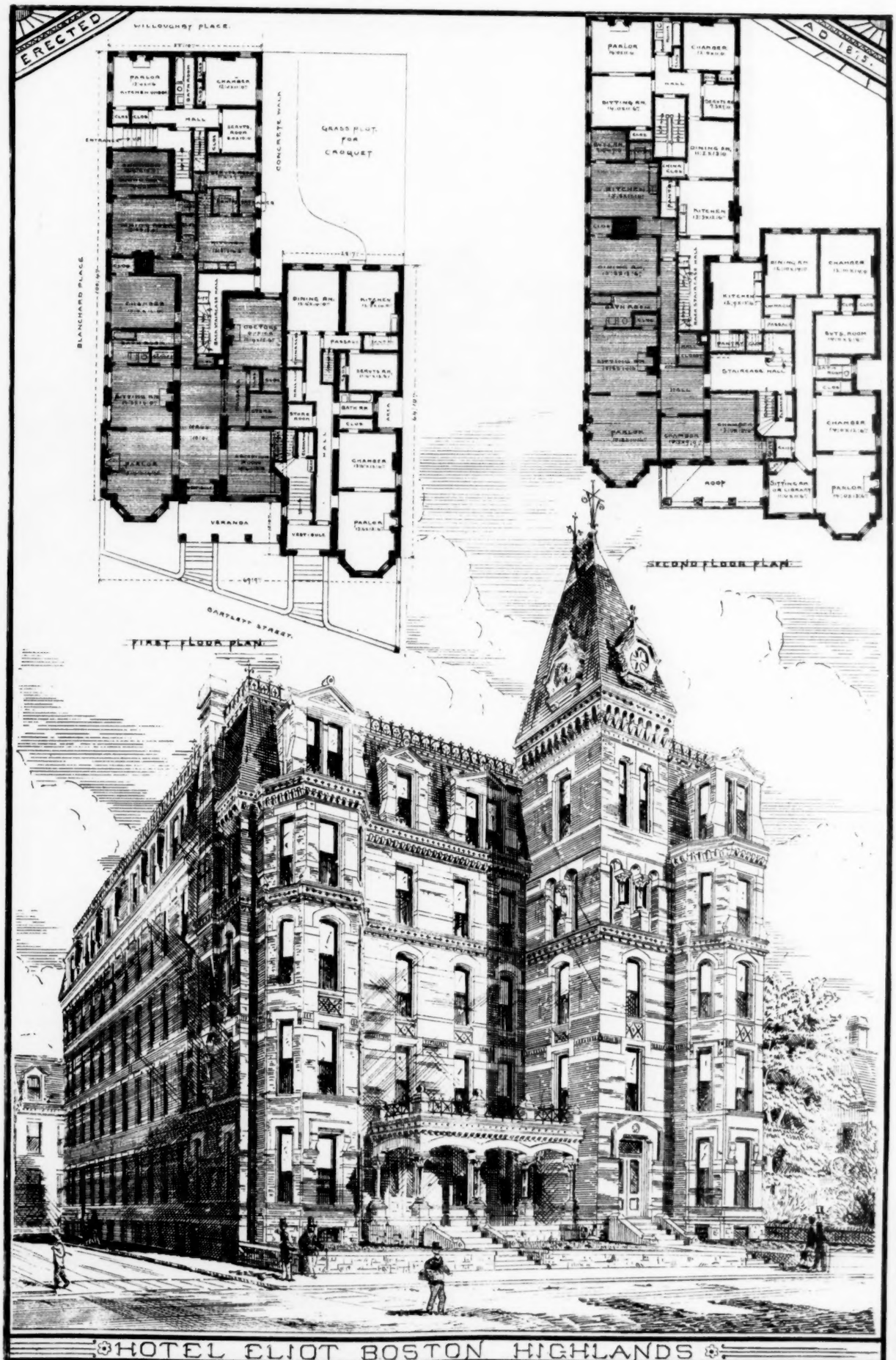


STAIRCASE HALL

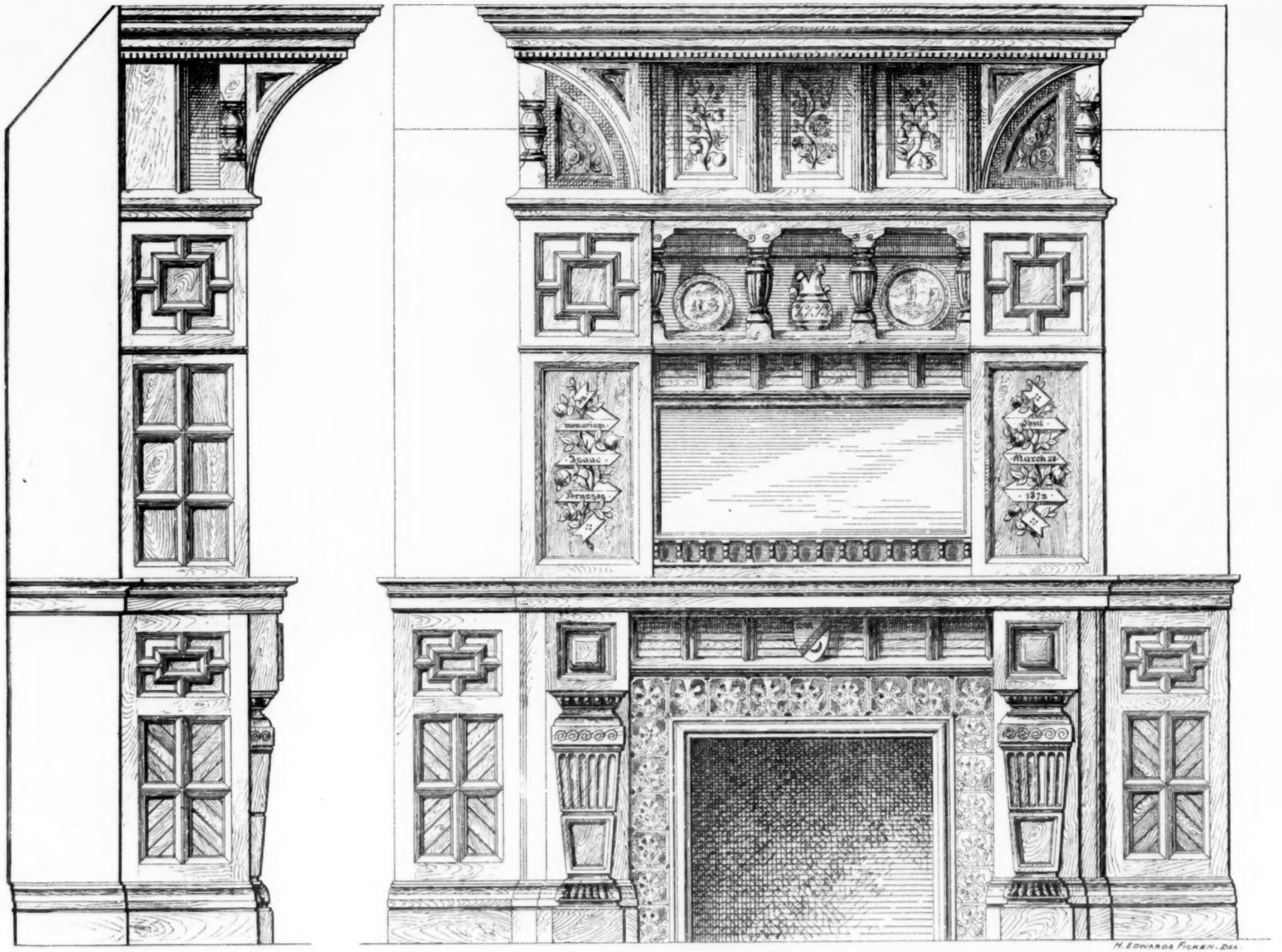
ELEVATION

HELIOTYPE

JAMES R. OSGOOD & CO


ERECTED
A.D. 1875
WILLOUGHBY PLACE
BLANCHARD PLACE
BARTLETT STREET
CONCRETE WALK
GRASS PLOT FOR CROQUET
PARLOR
CHAMBER
HALL
SERVTS. ROOM
DINING RM.
KITCHEN
OFFICE
STORE ROOM
BATH RM.
CLOS.
VERANDA
VESTIBULE
FIRST FLOOR PLAN
SECOND FLOOR PLAN
HOTEL ELIOT BOSTON HIGHLANDS
J.H. BESARICK ARCHT
32 PEMBERTON SQ BOSTON

· Kappa Alpha Lodge · Design for Memorial Fireplace ·



· Side ·

Front ·

· Potter & Robertson · Architects ·

Heliotype

James R. Osgood & Co. Boston

ing well selected and seasoned stocks: consequently when a good lot of oak is wanted, it cannot be had. We are told that black walnut is the only material kept on hand, and well seasoned. Consequently very much work which would be preferred in oak is perforce executed in walnut. White walnut, or butternut, has recently come into extensive use in this country, and can now be had in good quantities and well seasoned. It is remarkable that so little of it was seen at the Exhibition. The picture-frame designed by Mr. Addison was the only piece of this wood that we remember to have seen.

The American ebonized work by leading firms was quite equal to the foreign, the woods used being generally cherry, but in some cases white holly and pear-wood. The Italians finished their black walnut only in oil or wax, and without polish. The only piece of American walnut finished in wax was the sideboard by Pottier & Stymus. All the other American walnut work was filled and polished. The foreign oak furniture was invariably finished with oil or wax, and without filling, which is the only proper treatment. The prevailing error in all American work was too much polishing and filling, often used to cover up inferior workmanship.

Second, as to style, it will be seen from what has been said in previous papers, that most of the work from the Continent of Europe was in the latest rendition of the Renaissance, which is characterized by fineness of detail and delicate carving, and freedom from clumsy and pretentious ornament. The European feeling was well reflected in the Renaissance work of Marcotte and Pottier & Stymus, while but little of it was seen in the works of any of the other exhibitors. There was no evidence in the Exhibition of any tendency toward the revival of a Gothic or constructive furniture on the Continent, the only taste for such forms being manifested in a rage for procuring genuine old pieces. On the contrary, in England the tendency is to revive all the old styles indiscriminately; and the making of furniture in the Gothic and Queen Anne, Elizabethan, or Jacobean styles, as well as in the style of the Georges, is going on all at once; and this is all done by enthusiasts bent upon a great reformation. It is hard to tell which has the ascendancy.

The Gothic revival in America was commenced by members of the architectural profession, under the inspiration of Viollet-le-Duc and the contemporaneous works of the English architects. It has found its imitators among the furniture-manufacturers, who only give us part of the shell and none of the kernel of the nut. This has proved so disgusting to people of taste and judgment, that a very few of the conscientious manufacturers like Herter of New York, and Fiedler and Bates of Chicago, have taken up the Queen Anne style, freely treated, and worked on constructive principles. (The last two firms were not represented at the Centennial.) This last movement cannot fail to produce good results. The work done by Cottier & Co. of New York is also exciting a considerable influence among the wealthy and refined people of that city to whom they cater. Their black and unfilled oak is a specialty, and likely to be more extensively used by others. Their style would be hard to describe, but it certainly has the virtue of demanding straight wood for its execution. These influences are all running counter to the heavy and vulgar renditions of the French Renaissance, which are the stock in trade of nineteen out of twenty of our manufacturers. The Exhibition, taken altogether, has set people to thinking on this subject, and cannot fail to have a good influence in improving the taste of the mass of visitors who saw it, notwithstanding the mass of trash that was exhibited.

THE ILLUSTRATIONS.

HOTEL ELIOT, BOSTON HIGHLANDS. MR. J. H. BESARICK, ARCHITECT.

(32 Pemberton Square, Boston.)

THIS hotel, commenced in 1874 and completed in 1875, is built of face brick with brown sandstone and black brick trimmings, laid in black mortar. It contains fifteen suites of rooms, two elevators, and all modern conveniences complete, and is owned by Dr. J. P. Paine.

DESIGN FOR MEMORIAL MANTEL, KAPPA ALPHA LODGE, WILLIAMSTOWN, MASS. MESSRS. POTTER & ROBERTSON, ARCHITECTS.

(52 William Street, New York, N.Y.)

This mantel, to be placed in the dining-room of the Kappa Alpha Lodge now building at Williamstown, Mass., of which an illustration was given in Vol. I. No. 22, has been given by Mrs. Isaac Brunsen as a memorial of her deceased husband, a late alumnus of Union College. It is to be finished in oak with carved panels as suggested in the design.

HOUSE FOR T. B. MACKAY, CAMBRIDGE, MASS. MESSRS. PEABODY AND STEARNS, ARCHITECTS.

(60 Devonshire Street, Boston, Mass.)

DETAILS OF THE NEW OLD SOUTH CHURCH, BOSTON, MASS. MESSRS. CUMMINGS AND SEARS, ARCHITECTS.

(9 Pemberton Square, Boston, Mass.)

We give this week a drawing prepared by Mr. W. Whitney Lewis for the Portfolio Club.

AMERICAN INSTITUTE OF ARCHITECTS.

ABSTRACT OF MINUTES OF BOARD OF TRUSTEES, A. I. A.

Meeting held at the Institute rooms Thursday, Nov. 16, 1876. — The Secretary presented a letter from Dr. Migerska, Chief Commissioner of the Austrian Commission to the Centennial Exhibition, dated Nov. 7, 1876, on the subject of the gift of the Austrian Society of Engineers and Architects to this Institute, together with a list of the illustrations as given.

The matter of getting possession of the objects, and of transporting them to the Institute rooms, was referred to the Secretary with power.

The meeting then adjourned.

Regular monthly meeting at Institute rooms, Dec. 21, 1876. — The Secretary called attention to the fact that the Board of Trustees had been recommended at the late Convention to hold quarterly meetings, and to give sufficient notice thereof to the Trustees who are not residents of New York to enable them to attend if convenient to themselves.

Mr. Haight moved that the next regular monthly meeting of the Board be considered a general meeting, that due notice thereof be sent to all the Trustees, and that the dates for future stated general meetings be referred to that meeting: carried.

MINUTES OF NEW YORK CHAPTER, A. I. A.

A regular business meeting was held at the Chapter rooms on Tuesday, Jan. 2, 1877, at half-past one, P.M.

Mr. Pfeiffer, from the Executive and Education Committees, reported that Mr. Hunt having offered to the Chapter the use of his offices at 28 East Twenty-first Street, for a conversazione and exhibition of the works of members, as well as to provide an accompanying collation, the Executive Committee had gratefully accepted the offer, and appointed the evening of Feb. 22 for the entertainment, which under proper restrictions would be open to the guests of the members.

The occasion would also be improved by the Committee on Education, on behalf of Junior Members, who would previously be invited to enter into a competition of architectural designs, the results of which would form part of the exhibition. The occasion would furthermore serve for the reading of a paper by Mr. Pfeiffer himself on "Light and its Requirements in Connection with Buildings."

The Secretary moved that the reports from the Standing Committees be accepted, and that a vote of thanks be tendered to Mr. Hunt for his liberality: carried unanimously.

Several members suggested that a paper should also be prepared by some distinguished amateur, and read at the conversazione.

The Secretary from the Centennial Committee reported that all the illustrations forwarded to Philadelphia had been handled and returned in good condition.

FIRE-PROOFING THEATRES.

NEW YORK.

TO THE EDITOR OF THE AMERICAN ARCHITECT AND BUILDING NEWS.

Dear Sir, — The burning of the Brooklyn Theatre has caused a great deal of discussion as to the best manner of constructing a theatre, to provide for safe egress in the event of fire. Thus far the opinions of managers expressed through the press, assume that the cost of a properly built theatre is too great to make it a good investment; and this view has been generally admitted to be correct. However, I am not of this persuasion, and believe that there remains an economical construction, not of a fire-proof theatre, but of one that shall save the lives and limbs of an audience from fire and panic.

We know that fire in theatres almost invariably originates upon the stage: therefore if we could confine the flames to that part of the building, the only remaining danger is panic. With this view the New York *Herald* very sensibly suggested that the proscenium wall should be of brick, which it seldom or never is in fact, the curtain-opening being a brick archway through this wall. This certainly does not entail great expense. The *Herald* also suggested that there should be an iron curtain to close this opening in case of fire; to this I would suggest an improvement, that the *only* drop-curtain should be an iron coiling shutter which could be decorated as readily as the usual canvas. The constant use of this would insure its always being in readiness in an emergency. The foregoing precautions only deal with the fire as on the stage, and would only serve to delay the consumption of the whole

building; but the delay would add to the confidence of the audience, and go far toward preventing the horrors of panic. The precautions that I shall propose not only tend in this direction, but make it a matter of no importance if the whole building is in flames before the audience has escaped; for my suggestions are based primarily upon the plan of the corridors and staircases in their relation to the auditorium, and secondarily upon the materials employed and their disposition. The diagram No. 1 shows plan

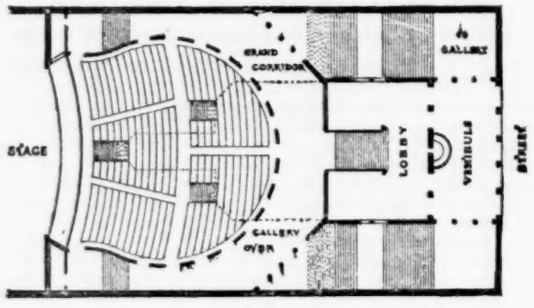


Fig. 1.

of parquette, lobbies, etc. No. 2 shows vertical and longitudinal section. This plan displays an entirely separate exit for galleries and for parquette, — the latter being emptied by three stairways leading to corridors under the floor, the corridors being

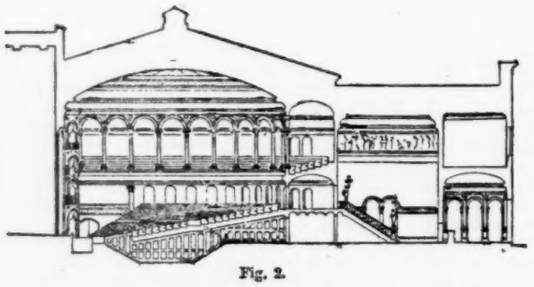
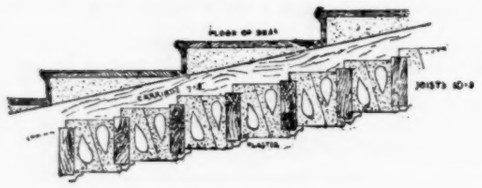


Fig. 2.

much wider than the stairways, and all emptying into the lobby toward the street; these corridors, lobbies, and staircases to be of fire-proof construction in this wise. In this way the ceiling of the passages would be fire-proof, and the walls would of course be



of brick, while under foot we should have concrete. The brick walls would support the joists shown in the diagram, which again support the carriages; the spaces between the joists are filled with self-supporting blocks of fire-proof material, whose flanges cover the edges of the timber, and any interstices are filled up with the same material. In regard to cost, a saving is made in the framing, as with this stiffening no cross-bridging is required, and the timbers can be of smaller scantlings. Exhaustive experiment has proved that wood so protected can endure a much severer exposure than any ordinary conflagration creates, for more than an hour and a half. I have studied this subject of construction in places of public amusement for some years, and find that such precautions as the above would not on the whole add more than ten thousand dollars to the cost of the largest theatre in existence if it were constructed from the first in this way; not only the passages under auditorium, but lobbies and all exits, being on the same principle. Occasions may often arise where the communication with the street is not so direct; but in these instances such precautions as I have described are only the more imperative.

The adoption of these principles would of necessity give our parquettes a much greater pitch than they ordinarily have, and this I think a needed improvement both for acoustic and spectacular reasons.

A. F. OAKEY, *Architect.*

44 WEST SEVENTEENTH STREET, NEW YORK.

ENCAUSTIC TILES. — Encaustic tile works have been started in the outskirts of Pittsburg, Penn.

DRAINAGE IN LEVEL GROUND.

STAMFORD, CONN.

TO THE EDITOR OF THE AMERICAN ARCHITECT AND BUILDING NEWS.

Dear Sir, — Mr. Waring's reply in your issue of the 23d ult. to my query printed in a previous number, as to the best mode of disposing of the sewage of country houses which stand on level ground, is interesting, but by no means exhausts the subject.

Of the five systems Mr. Waring enumerates, the first, second, and third are practically excluded from consideration by him on account of their objections, and the fourth (the use of a public sewer) is excluded by the conditions supposed in my query, so that only the fifth (the sub-soil irrigation system of Moule) remains; and to this Mr. Waring nails his colors with the remark that if the grade does not admit of this system it "must be made to conform to it: that is all there is about it." This position I think is hardly tenable, however, for in many places the grade is uncompromisingly and provokingly level, and *cannot* be altered, as, for instance, in such districts as Central New Jersey, where in some towns and villages the grade does not vary twenty inches in the whole place, let alone within the bounds of an ordinary house-lot of say fifty by one hundred and fifty feet. In such cases the sewage *could*, of course, be collected in a tight cesspool, thence pumped into a raised flush-tank, and then discharged into subsoil irrigation pipes; but this plan is too expensive, both in first cost and in operation, to admit of general application, and is moreover open to the objections Mr. Waring makes to tight cesspools. And thus, *for flat grounds*, system number five is also in many cases excluded.

If the question of cost be ignored, there is little difficulty to the engineer in dealing with the problem we are considering, under any conceivable circumstances; but it must be remembered that cost is almost invariably an important if not a controlling element, and the question therefore is, How, at reasonable cost, can we secure the best result?

Now I believe that where, as I have supposed, there is a street water-supply so that we need not fear contamination of drinking-water, the leaching cesspool *properly used* may, notwithstanding its conceded objections, be our best reliance. The conditions under which it may be resorted to, I conceive to be as follows: It should be located as far from the house as possible, but not less than fifty or sixty feet, and should be carried to a depth of at least four or five feet below the mouth of the discharging sewer. Its diameter (as dug) for an ordinary dwelling-house should be at least ten feet; and its walls of large, loosely fitted stones should be "drawn in" from a point just above the sewer outlet as quickly as practicable, so as to form a dome entirely covering the cesspool, above which, to the ground level, the excavation should be filled in with clean earth in which vegetation should be encouraged. Before closing the cesspool two four or six inch pipes of lead or galvanized sheet iron should be laid in place, one reaching down almost to the level of the sewer, and the other starting from the apex of the dome. These pipes should be led below ground to some convenient point, and then carried to an elevation of at least eight or ten feet above ground, and then capped with ventilating cowls, the one leading from the top of the cesspool having a cowl so constructed as to create an upward current in the pipe, the other having a reversed cowl, like a "wind-sail," which will force air downward into the cesspool. By this means we prevent any pressure within the cesspool or sewer from the formation of gases of decomposition, and also provide for a circulation of air within the cesspool which will constantly dilute and carry away the gaseous impurities.

In laying the sewer or drain from the cesspool to the house, the precautions which Mr. Waring suggests should be taken to secure tight joints and a solid bed, a good running trap should be inserted not far from the house, and the iron soil-pipe from within the house carefully connected. Within the house the soil-pipe itself should be independently ventilated by carrying its upper end out through the roof, and making an opening in its lower end in basement to complete the circulation. One or the other of these openings must be connected with the kitchen flue (in which there is always a fire), and the other with the outer air. Thus equipped we have a system which is at least safe against the entrance of "sewer-gas" by the ordinary channels. The existence of any pressure within the soil-pipes and drains is guarded against, and the system of ventilation provides for the constant dilution and removal of gaseous products of decomposition whether produced in the cesspool or soil-pipes.

The remaining sources of danger are from impure "ground-air" and the vitiation of the local water. The latter is admitted as a fact, and the plan under discussion is recommended only where the water-supply is brought from a distant and untainted source. The former only need therefore be considered. Now, assuming a moderately pervious soil at the level of the bottom of the cesspool (and without this the cesspool soon becomes practically a tight one), the purely fluid part of the sewage will probably travel a long way, indeed, will mingle with the subterranean streams which exist in almost all localities. But it should be remembered that all of this sewage is usually enormously diluted with water, that we have provided for the removal of its more volatile constituents, and finally that the liquid portion in flowing away passes

through what we may regard as a huge filter which washes out and retains the remaining organic constituents. So long as the surrounding soil is able to decompose and absorb the matter thus committed to it, no danger accrues. In the course of time, however, the capacity of the surrounding soil is exhausted; and the gases resulting from the decomposition of organic impurities begin to rise, unpurified and noxious, through the upper strata of the soil. At first the absorbent and disinfectant powers of the latter will disarm the enemy, but ultimately the impure air and gases we have so much cause to dread will reach the surface, and mingle with the outer air. But when this is the case, are we any worse off than under the "subsoil irrigation" system? With that *all* the decomposition occurs at the surface of the ground, and dependence is placed on vegetation and free admixture of air to neutralize its effects. But why are not the same means to be equally relied upon for neutralizing and dispersing the products of decomposition which may occur at a greater depth below the surface? Probably these products are diffused over a much greater area of ground on reaching the surface than they would be under the other system, and are already diluted and partially disarmed for harm. One caution should be observed, however, where this plan is followed, particularly where the cesspool is not well removed from the house; namely, to guard against any possible rising of emanations from the ground *within the house*, by having well-cemented cellar walls and floor (or, better still, in addition to these an open area around the house); but this precaution is one that ought to be observed with any system, and in all houses.

In conclusion let me say that the above plan is only suggested for houses "which stand on level ground," and which have a safe and abundant water-supply. For more favorably situated cases better plans, no doubt, are available; but for the case I have supposed, I have seen none suggested by which at moderate cost equal safety can be secured. But in this correspondence I have been a seeker after knowledge, not an expounder of it; and I shall be glad to learn of better plans than that I have suggested, if such there are.

Respectfully yours,

HENRY R. TOWNE.

THE NEW YORK STATE CAPITOL AT ALBANY.

ALBANY.

TO THE EDITOR OF THE AMERICAN ARCHITECT: —

IN spite of the protest from the American Institute of Architects, and the denunciation of the community generally against the unwarrantable alterations being made at our State Capitol, — the exterior especially, — the work still continues.

It is needless to go into a description of the changes: they are pretty well known to our architects as being utterly void of continuity and appropriateness in connection with the work as already executed.

The old work of the Renaissance style terminates squarely under a *Gothic* cornice, which surmounts an entablature with composite capitals without enrichment of any kind; and on top of which begins the new design of a Romanesque species, which we are told is to be very simple and very plain. This *Gothic* cornice is the rim or belt, — the separating line between the two styles and two halves. Any architect can work the thing up in his own eye, and see the absurdity of it. The only affinity between the two designs will be that this new portion is built of granite, and that the window-heads are semicircular.

Much stress has been made on economy, — the costliness of the former design, the cheapness of the latter: projections, balconies, etc., would all be dispensed with, and plain dead work substituted. Well, we are getting the dead work, but it is being well thumped with the stonecutters' mallet and chisel, until we are producing from a stencil, somewhat Alhambric in design, cuttings which cost from fifteen to twenty-five dollars per square foot. This vermiculated work, with the polishing which is to be so beautiful, we fear will be somewhat expensive.

We firmly believe that the old design could have been so modified as to have secured all that was contended for, and at no greater cost than the present one.

But economy is not so important to us as the art status of our country; and taking the design as we find it, and as it promises to be, we are not puzzled to anticipate the criticisms it will incite, and the general condemnation which will follow.

WALTER DICKSON.

BLACK BRICK.

SPRINGFIELD, MASS.

TO THE EDITOR OF THE AMERICAN ARCHITECT AND BUILDING NEWS.

Dear Sir, — We notice a correspondent inquires how to make black brick (pressed, we suppose).

Perhaps our experience may be worth relating.

Our brick were Trenton pressed No. 7, and our object was to get them perfectly smooth and lustreless, so that they would bear close inspection; and as the mason did not succeed very well, we tried our hand, and succeeded in the following manner: —

We heated the brick in an oven (not allowing them to come directly to the fire), and found they would stand about a hissing heat without cracking. The tar (of which we used but very little) we put into a pan, and allowed to come to a boil: we then took an old paint-brush, and, after working it up, applied the hot tar to the brick, taking care to scrape the brush so that it held no more than the brick would absorb. This latter we found to be an *important* consideration. By this means we succeeded in getting splendid-looking brick, with as uniform and lustreless a surface as before having the tar applied.

In hopes that this may be of use to your correspondent, we remain.

Yours truly,

FERRY & GARDNER.

ATTEMPTED BRIBERY.

NEW YORK, Jan. 3, 1877.

EDITOR AMERICAN ARCHITECT.

Sir, — I believe the most effective defence against the insult to the profession, proffered by the writer of the enclosed letter, is to publish it. If you agree with me on this point, please do so.

Yours respectfully,

JOHN C. BABCOCK.

27 NEW CHURCH STREET, NEW YORK,
Nov. 27, 1876.

MR. JOHN C. BABCOCK.

Dear Sir, — I would be pleased if you would give me a chance to estimate on any work you may have, and allow an exact half for the profits. You can depend on me as a workman and being able to carry out this plan. Having capital I am able to handle a large as well as a small job.

If this meets your views send me a card, and at your request will call and see you.

Respectfully,

L. H. ROBERTSON.

DAMP ARISING FROM THE BURNING OF GAS.

MR. THOMAS BLASHILL says in the *Builder*, "I believe that gas-lighting as a cause of damp has never been recognized by writers on this subject, though the way in which water will condense in the long chimney or flue of a 'ventilating globe-light' has been noticed. In a paper which I read before the Society of Arts last year ('Health, Comfort, and Cleanliness in the House'), an abstract of which was published in the *Builder*, I gave some hints on this subject. A few particular instances, such as I am now frequently observing, will best show the nature of this evil.

"I was first led to notice it in a mansion which was designed by me a few years ago. When it was on the point of completion, I advised my client to keep up plenty of fires as a means of drying the plaster, and to open the windows on all dry warm days. The price of coals had then risen considerably, while gas remained cheap: so he had temporary burners fitted, and burnt gas night and day. On my next visit I found the plastered walls, which before had been simply moist, covered with a heavy dew; the ceilings were in the same state (but in a less degree), except where they were heated by the gas-flame. The plasterer observed how nicely the walls were 'drying out,' and my client was much pleased. I was as much dissatisfied; for in my experience the water contained in plaster does not dry out in drops, but in the form of insensible moisture which is conveyed away by the atmosphere. As this is a common error, I would point out that whenever new plaster is wet with beads of water, this is due to condensation of moisture from the air on the cold surface of the wall. On several weekly visits I found matters grew steadily worse; but as I had amply protested, and was seeking information on the subject, I was not sorry to watch the experiment. It did not come to an end till I asked my client whether more water had not run down a particular wall, or been wiped off its surface with cloths, than had been put in to make the plaster.

"In the mean time, an equally interesting experiment was going on in the cellar under the dining-room, the floor of the latter being pugged and ceiled below. Communication with the outer air was cut off, and flaring gas-jets were lighted. The moisture that soon began to stand in beads on the ceiling (away from the heat of the gas) soon formed one sheet of water; and then the ceiling became hung with large drops containing half a teaspoonful of water, which fell on the floor till that became wet also. My client, who had full charge of his cellar, insisted with British obstinacy that all this was 'damp' rising from the floor and from an old well. I lived and learned, till one day the late Dr. Letheby kindly gave me the approximate amount of water produced by the combustion of one foot of coal-gas with the needful quantity of air, the hydrogen in the first combining with the oxygen in the atmosphere. In that house five hundred feet of gas were being burnt per day, and I calculated that during the 'experiment' not less than a hogshead of water had been produced. Any one may satisfy himself as to this by observing the phenomenon which first gave me the hint as to this cause of damp. Light an argand gas-burner fitted with a clear glass chimney: in the first moment a flush of moisture, like condensed breath, will appear in the chimney; the next moment it will disappear, being vaporized by the heat of the flame. But the moisture continues to be produced,

and will go about the room (or even about the house), searching for any damp corner or cold wall where it may settle. There is also moisture produced by the burning of oil-lamps, but to a much less extent. I have had complaints of 'damp' which affected the clothes hung up in mahogany wardrobes, and which could be traced to nothing but the excessive consumption of gas which many people practise to save trouble, — lighting up every burner at nightfall, and thus keeping the whole house light and warm. I have just had to report upon the damp which is destroying the paper in the handsome drawing-room of a well-built house where, after observing that these walls were the only walls in the house that exhibited signs of moisture, I found it was the practice to light up a large chandelier early in the evening, the door being usually closed, and no fire kept up as a general rule. From the same cause a friend had his drawing-room thoroughly drenched with water one very cold Christmas, the gas having been kept burning night and day in the closed room during the absence of the family.

"With regard to public buildings, I have just been in a church that I have recently completed, and found the windows covered with water, and the walls patchy with moisture, through the gas having been burnt for a whole day in order to warm the building for Wednesday evening service, every means of ventilation being at the same time closed. This is a constant habit in many churches where choir practice or short services are frequent, and is highly objectionable.

"One other instance is instructive as showing the effect of different ways of 'finishing' wall-surfaces. I sometimes attend concerts in a building which is two or three years old. The walls of the room are designed with pilasters, which were finished in polished Parian cement, the panels between them being in ordinary plaster. When first used the room was unpainted, and the moisture from breath and from the gas condensed on the smooth pilasters only. The whole wall-surface has been lately painted; and now, when the ventilation is inadequate, the moisture condenses pretty equally all over the wall.

"The remedy is, first, to burn as little gas as possible, and next to apply all the means of ventilation I have noticed, particularly such as keep up a supply of warm fresh air and a draught of spent air towards the fire. Polished surfaces should also, where possible, be avoided.

"Without questioning that in many instances the dampness of a house is rightly attributed to the driving of rain against the walls, I am satisfied that it usually arises from one of the causes here indicated. I believe that frequently where the ties used in hollow walls seem to transmit the damp so that one may count them by the wet spots on the paper hanging, the real cause of the damp is that the ties have simply carried off the heat from the inner face, and so facilitated the condensation of the internal moisture of the house on these particular spots. I am sure, however, that the subject urgently requires attention, and ought to be better understood by persons who are responsible in any way for the condition of houses and public buildings."

NOTES AND CLIPPINGS.

BROOKLYN'S MUNICIPAL BUILDING. — After a twelvemonth of talk, work on the Brooklyn Municipal Building is just begun. The project grew out of the necessity of bringing the scattered offices of the various city officials under one roof; and in February last an appropriation of $2 0,000, exclusive of the cost of the land, was voted for the purpose. The foundations of the building are laid on the lot on Joralemon Street, directly west of and adjoining the court-house. It will be 100 by 150 feet, four stories high, of brick with marble front, and practically fire-proof. The architecture is of the French Renaissance style, with little decoration. [Whose is it?]

THE ANNUAL FIRE RECORD OF NEW YORK. — During the past year there have been 1,344 fires, causing a loss of $2,717,996, while insurance amounted to $11,923,109. The assigned causes of these fires are as follows: carelessness of occupants, 321; children playing with matches, 65; broken glass falling on matches, 1; vermin gnawing matches, 6; defective flues, 41; foul chimneys, 130; hot coals dropped from stoves, 3; sparks from chimneys, 43; upsetting stove, 7; overheated stoves, 40; improper management of stove-pipes, 9; improper construction of brick furnaces, 3; furnaces and chimneys, 13; ignition of escaped gas, 22; gasoline stoves and lamps, 3; kerosene lamps, 86; explosion of liquid gas, 2; clothes igniting from stove, 7; window-curtains, clothes, etc., ignited by gas-lights, 51; fat and meat falling into the fire, 18; tar and pitch boiling over, 35; sugar and wax boiling over, 4; hot rye in cooler, 2; friction of belting and machinery, 6; oily rags in contact with steam-pipes, 1; spontaneous combustion, 23; chemicals igniting, 2; fireworks, transparencies, etc., 106; sparks from previous fire, 7; bursting of kiln, 1; Christmas tree, 1; accidental, 12; incendiary, 18; malicious mischief, 28; unknown, 85. The account from which this is compiled still leaves the causes of 145 fires unexplained. These fires were attended by fifteen fatal casualties.

ARTESIAN WELL. — Artesian water has been struck in the Foot-Hills of California. A farmer sunk a well, expecting water from the usual alkaline surface springs; but instead he struck a spring of artesian water that rose from the bottom at forty-five feet below to twenty feet above the surface of the ground.

PROMPT ACTION. — The proscenium of the Boston Museum has been made fire-proof; a new main entrance to the auditorium is being constructed; the new wire curtain is ready, and will soon be put in place; and the sprinklers, which are capable of deluging the entire stage with water in a few seconds, will be made available as soon as a supply is furnished from the high service main. The hose attachments on the stage are, as they ever have been, extensive and complete, and available at all times for immediate use.

AN OVERBURDENED ROOF. — On Tuesday morning, Jan. 2, a large portion of the truss roof of the carriage-house of Garcelon's stable on the corner of Chestnut and Brimmer Streets, Boston, upon which had accumulated a large quantity of snow fell, burying a large number of carriages belonging to private parties. Some twenty-five first-class buggies and sleighs were ruined. The loss on the building, which was formerly used as a riding-school, falls upon the owner, Jonas Fitch, and, with the loss on the carriages, amounts to upward of $10,000.

THE NEW CAPITOL AT ALBANY. — The Albany *Argus* of the 1st inst. says: "A meeting of the new Capitol Commissioners was held last week, and advertisements were ordered for iron work, masonry, granite, tiling, plastering, etc., sufficient to continue the work through the winter, and to carry the building forward well into the fourth story. The report required of the commission by the legislature of last year in relation to the detailed plans and specifications will be ready at an early day, and says the building will probably be ready for roofing next year if a new appropriation is made early in the session. To have the building fully habitable by 1879, it will be necessary, however, to have liberal appropriations in the mean time."

SCHOOL HYGIENE. — The New York Medico-Legal Society has adopted the following recommendations: the minimum age of admission to public schools should be six years instead of four; the maximum attendance at school for children under eight years of age should be made three hours per day, with suitable intermission; provision should be made by law for medical inspection and supervision of schools to secure the enforcement of sanitary laws; large playgrounds should be furnished for the children, and the schools should be built where adequate space can be had to insure light, ventilation, and play-ground.

HARD TIMES IN BOSTON. — The building-permits issued in 1874, 1875, and 1876, are given below; and from the table it will be seen how great has been the falling off in the permits issued. It does not, of course, show the number of buildings erected, as a single permit may represent one or six buildings.

	1874.	1875.	1876.
Brick and stone	345	224	151
Wood	911	563	456
Repairs and alterations	1887	1627	1778

OVERCROWDING OF TENEMENT-HOUSES. — The New York *Times* estimates the population of the Eleventh Ward, New York, where a large part of the German population live, at about 196,510 per square mile; that of the Tenth Ward at 185,512; that of the Seventeenth Ward at 153,006; while in a portion of the Fourth Ward there are about 17,600 packed upon an area of some thirty acres, raising the rate to about 290,000 per square mile. Holborn, one of the poorest of the London districts, has a population of about 148,705, while East London, a still more wretched district, has a population of about 175,816, to the square mile.

PANIC IN A CHURCH. — On Sunday night, Dec. 24, a disaster came near taking place in the St. Mary's Catholic Church at Oshkosh, Wis. The light drapery with which the altar was trimmed caught fire, which filled the church with flame and smoke in an instant. The large audience became panic-stricken, and made a rush for the door, which at the time was closed; and, the excited people crowding and jamming against the door, it was utterly impossible to get it open. The flames were quickly extinguished before much damage was done, and the congregation quieted.

FIRES AT CHICAGO. — During the past year there have been 474 fires at Chicago, causing a loss of $389,820, while the insurance was $3,272,800.

THE NEW YORK THEATRES. — It is stated that two picked firemen have been assigned to each theatre, one of whom is to keep watch in the auditorium, and another is to have charge of the fire-apparatus in the house.

THE PHILADELPHIA PUBLIC BUILDINGS. — The Supreme Court took possession of its new rooms in the Public Buildings on the 1st inst.

PANIC AT AN ENGLISH THEATRE. — A false alarm of fire at the Prince's Theatre, Manchester, England, created a momentary panic on Dec. 16.

THE HÔTEL DIEU, PARIS. — A new Hôtel Dieu is rapidly approaching completion, and is described as having an appearance of massiveness rather than of elegance; terraced walks are laid out in the principal court-yard of the main building for the use of convalescents. The old hospital will be torn down as soon as the new one is ready for occupancy, and thus make the Cathedral of Paris more conspicuous.

AN APPROPRIATE TITLE. — An exchange gives as title of an illustration of the Tuscan column made of grindstones at the Centennial, "A Monument to Grit."